

CLAIMS:

Claim 1. A paperboard laminate comprising:

a paperboard substrate, having an interior surface and an exterior surface;

a layer of high density polyethylene on the interior surface of the paperboard substrate;

5 a tie layer interior to the high density polyethylene layer;

a barrier layer interior to the high density polyethylene layer;

a second tie layer interior to the barrier layer;

and a second polyolefin layer interior to the second tie layer.

10 **Claim 2.** The paperboard laminate according to claim 1, further comprising a layer of polyolefin on the exterior surface of the paperboard substrate.

Claim 3. The paperboard laminate according to claim 1, wherein the barrier layer is selected from the group consisting of polyamides, polyethylene terephthalates, polyesters, ethylene vinyl alcohol copolymers including oxygen scavenging EVOH, EVOH
15 nanocomposites, and blends of EVOH with polyolefins, polyvinyl alcohols, polyolefins, cyclic olefin copolymers, polycarbonates, liquid crystalline polymers.

Claim 4. The paperboard laminate according to claim 3, wherein the barrier layer is
20 blended with at least one material selected from the group consisting of desiccants, molecular sieves, and cyclodextrins.

Claim 5. The paperboard laminate according to claim 3, wherein the barrier layer is ethylene vinyl alcohol.

Claim 6. The paperboard laminate according to claim 1, wherein the polyolefin is polyethylene.

Claim 7. The paperboard laminate according to claim 1, wherein the second
5 polyolefin layer is polyethylene and contacts the container contents.

Claim 8. The paperboard laminate according to claim 1, wherein the high density polyethylene has a density range of 0.94 g/cm³ to 0.96 g/cm³.

10 **Claim 9.** The paperboard laminate according to claim 1, wherein the tie layer is selected from the group consisting of anhydride modified polyolefins, ethylene acrylic acids, ethylene methyl acrylic acids, and ethylene vinyl acetates.

Claim 10. The paperboard laminate according to claim 9, wherein the tie layer is an
15 ethylene based copolymer modified with maleic anhydride functional groups.

Claim 12. The paperboard laminate according to claim 9, wherein the tie layer is an ethylene vinyl acetate.

Claim 13. A container blank constructed from a laminated packaging material
20 according to claim 1.

Claim 14. The paperboard laminate according to claim 12, wherein the blank is formed into a container wherein dry goods are packaged in the container.

25 **Claim 15.** A paperboard laminate comprising:
a paperboard substrate, having an interior surface and an exterior surface;
a layer of polyolefin on the exterior surface of the paperboard substrate;

- a layer of high density polyethylene on the interior surface of the paperboard substrate;
- a tie layer interior to the high density polyethylene layer;
- an ethylene vinyl alcohol layer interior to the high density polyethylene layer;
- a second tie layer interior to the barrier layer;
- 5 and a second polyolefin layer interior to the second tie layer.